



4419158/637
2/14/03

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:)	Attorney Docket No.
HUBBELL, Earl A. et al.)	Examiner: FREDMAN, Jeffrey A.
Application No: 09/607,536)	Art Unit: 1637
Filed: June 29, 2000)	
Title: TECHNIQUES FOR SYNTHESIS)	
INTEGRITY EVALUATION)	
UTILIZING CYCLE FIDELITY PROBES)	

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TECH CENTER 1600/2300

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 on February 3, 2003.

Signed: Kimberly Badiei
Kimberly Badiei

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§1.56 AND 1.97

Assistant Commissioner for Patents
Washington, DC 20231

Dear Sir:

The references listed in the attached PTO Form 1449 copies of which are enclosed, may be material to the examination of the above-identified patent application. These references were cited in a corresponding foreign patent application. A copy of the foreign Search Report which was dated December 3, 2002, is enclosed herewith as well. These references are submitted in compliance with the applicant's duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. Accordingly, the Examiner is requested to make these citations official record in this application.

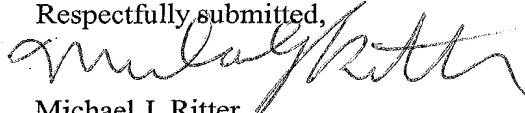
CERTIFICATION

The undersigned hereby certifies that the references enclosed herewith were cited in an international search report from the PCT searching authority less than three months before the filing date of the present Information Disclosure Statement. Accordingly, it is respectfully submitted that no fee is due in conjunction with the filing of this IDS. However, should the

Attorney Docket No.: AFFYP007X1C1

Commissioner determine that additional fees are required for filing the present Information Disclosure Statement, the Commissioner is hereby authorized to charge any such fees to our deposit account number 50-1652 (Order No. AFFYP007X1C1). A copy of this sheet is enclosed.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Michael J. Ritter", written over the typed name.

Michael J. Ritter
Reg. No. 36,653

RITTER, LANG & KAPLAN LLP
12930 Saratoga Ave., Suite D1
Saratoga, CA 95070
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Form 1449 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	Atty Docket No. AFFYP007X1C1 Application No.: 09/607,536 Inventor HUBBELL, Earl A. et al. Group 1637 Filing Date June 29, 2000
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U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	5,593,839	01/1997	Hubbell et al.	435	6	6/1995
	B						
	C						
	D						
	E						
	F						
	G						
	H						
	I						
	J						
	K						

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Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	L							
	M							
	N							
	O							
	P							

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	R	Earl Hubbell & Pavel A. Peyzner, "Fidelity Probes for DNA Arrays", Proceedings of the International Conference on Intelligent Systems for Molecular Biology, 6 August 1999 (1999-08-06), pages 113-117, XP000994620
	S	
	T	

Examiner	Date Considered
----------	-----------------

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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Patentamt
Zweigstelle in
Den Haag
Recherchen-
abteilung

European
Patent Office
Branch at
The Hague
Search
Division

Office européen
des brevets
Département à
La Haye
Division de la
recherche

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London WC2B 6UD
GRANDE BRETAGNE

HASELTINE LAKE LONDON
ACKNOWLEDGEMENT
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RECORDS
Datum/Date
28.01.02

Zeichen/Ref./Réf. HL72236/000/LHC	Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n° 99303194.7-1213/
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire Affymetrix, Inc. (a California Corporation)	

COMMUNICATION

The European Patent Office herewith transmits the partial European search report under Rule 46(1) EPC relating to the above-mentioned European patent application.

Copies of the documents cited in the search report are enclosed.

The applicant's attention is drawn to the following:

The search Division informs the applicant that if the European search report is also to cover inventions other than the invention first mentioned in the claims, a further search fee must be paid for each of these inventions, within ONE MONTH after notification of this communication.

If the application has been filed up to 30 June 1999, the search fee in force before 01 July 1999 (EUR 869,-) or the equivalent applicable on the date of payment is payable.

This applies also to the search fees requested under Rule 46(1) EPC.

See also OJ EPO 06/1999, 405.

- ☐ The abstract was modified by the Search Division and the definitive text is attached to the present communication.
- ☐ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.



Note to users of the automatic debiting procedure:

Unless the EPO receives prior instructions to the contrary, the search fee(s) will be debited on the last day of the period for payment. For further details see the Arrangements for the automatic debiting procedure, Supplement to OJ EPO 02/1999.

REGISTERED LETTER



European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT

under Rule 46, paragraph 1 of the European Patent Convention EP 99 30 3194

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 464 414 A (SEBRING-FONTEBASSO S.R.L.) 8 January 1992 (1992-01-08) * claims 1-3 *	1-3	B01J19/00 G07C3/00 G07C3/14
X	L. A. COLOM ET AL.: "defect data analysis in integrated circuit manufacturing" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 18, no. 4, September 1975 (1975-09), pages 1059-1060, XP002105569 ISSN: 0018-8689 * the whole document *	1-3	
A	US 5 571 639 A (EARL A. HUBBELL ET AL.) 5 November 1996 (1996-11-05) * claims *	1-3	
A	EP 0 799 897 A (AFFYMETRIX, INC.) 8 October 1997 (1997-10-08) * page 5, line 18 - line 23 * * figure 1 *	1-3	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G07C B01J

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

The present partial European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims.

Place of search THE HAGUE	Date of completion of the search 8 January 2002	Examiner Stevnsborg, N
CATEGORY OF CITED DOCUMENTS		
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		



European Patent
Office

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 99 30 3194

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

✓ 1. Claims: 1-3

Method of verifying a manufacturing process including a plurality of steps.

2. Claims: 4-13

Method of designing polymer probes, computer program for designing polymer probes and substrate having polymer probes coupled thereto.

The single general concept linking the subject-matters of independent claims 1, 4, 9 and 11 is the concept of verification of an entity during a manufacturing process. This concept is, however not novel, and widely known in the art, such as anticipated by the disclosure of EP-A-0 464 414 (see claims 1-3. Thus in the absence of any common special technical features between the subject-matters of independent claims 1, 4, 9 and 11, i.e. the absence of any common technical contribution over the disclosure of EP-A-0 464 414, the present application does not meet the unity requirement of Article 82 EPC and Rule 30 EPC.



European Patent
Office

**INCOMPLETE SEARCH
SHEET C**

Application Number
EP 99 30 3194

Claim(s) searched incompletely:
1-3

Claim(s) not searched:
4-13

Reason for the limitation of the search:

Present claims 1-3 relate to an extremely large number of possible methods for verifying a manufacturing process. Support within the meaning of Article 84 EPC and/or disclosure within the meaning of Article 83 EPC is to be found, however, for only a very small proportion of the methods claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the methods of claims 1-3 wherein the verifying process is applied to the manufacturing of polymer probes comprising sequences of DNA or RNA.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 3194

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

08-01-2002

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 464414	A	08-01-1992	IT	1242741 B	17-05-1994
			CS	9102016 A3	13-05-1992
			EP	0464414 A2	08-01-1992
			HU	61956 A2	29-03-1993
			PL	290816 A1	13-01-1992
			PT	98162 A	30-09-1993
US 5571639	A	05-11-1996	US	5593839 A	14-01-1997
			US	5856101 A	05-01-1999
EP 799897	A	08-10-1997	EP	0799897 A1	08-10-1997

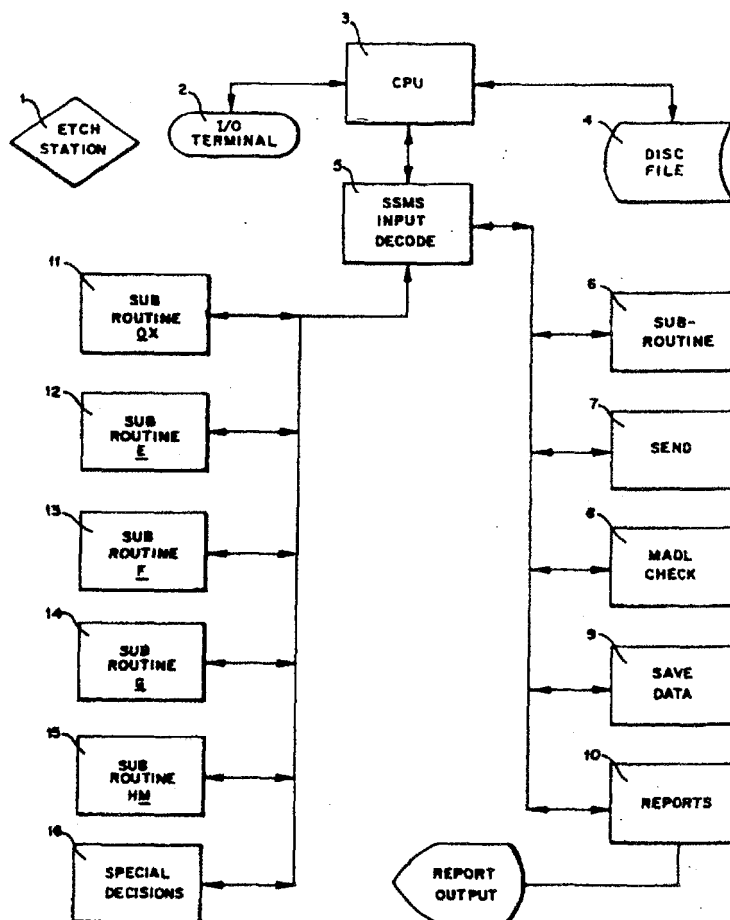
XP-002105569

DEFECT DATA ANALYSIS IN INTEGRATED CIRCUIT MANUFACTURING

L. A. Colom, R. T. Hill and W. W. Ziegler

P.D. 04/1975
p. 1059-1060 (2)

SELF-SUPPORTING MANUFACTURING SYSTEM



Conventionally, a photolithographic semiconductor manufacturing process is controlled by visual inspection of the product and go/no-go decisions are made based on the defect density observed. Data analysis is performed to determine if the process is in control based on output defective data and analysis.

The present system utilizes an APL-programmed computer to collect data and to attach relative importance weighting factors to defect types,

in order to calculate the estimated particular job. Impact to final test yields for the system, also compares defect data to allowable specification by structure and product type and feeds back information.

The system is fully automatic and operates on a realtime basis. It eliminates the decision making process for the operator, which in a multiproduct line becomes cumbersome due to the complexity of specifications.

This system is a computerized self-supporting manufacturing system. The system receives information on a job lot and returns a job inspection decision; that is, PASS, REWORK, SCREEN OUT REJECTS or HOLD for further disposition. The computer also returns detailed instructions if the input parameters are such that special instructions are necessary. The use of this system reduces the need for close engineering line support when operating a complex manufacturing operation, without the need for extensive training of line operators in quality control and other lot inspection statistics. In addition, the system stores the data for performance and trend analysis reporting.

The figure is a typical flow diagram for a system in use for job disposition, a typical final etch station used for photolithographic processing of integrated circuit chips.

1. Final etch station on photoprocessing manufacturing line.
2. Communication terminal for realtime access to computer 3.
3. Computer system. Example shown is APL/370 system hardware.
4. Disc storage of data for performance and trend analysis reports.
5. The basic input and decoding software function to check input parameters for errors, print error messages and select correct subrouting (11 to 16).
6. Subroutine to check for duplicate entry error and job lot past history.
7. Subroutine used to send a message or specific instructions to manufacturing line from a remote terminal on a realtime basis.
8. Subroutine used to check customer "maximum allowable defect limit" on a job lot and cumulative basis.
9. Subroutine to send each job lot entry to disc storage.
10. Subroutines for all off line reporting.

COPY



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**Europäisches
Patentamt**

Zweigstelle
in Den Haag
Recherchen-
abteilung

**European
Patent Office**

Branch at
The Hague
Search
division

**Office européen
des brevets**

Département à
La Haye
Division de la
recherche

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HASELTINE LAKE & CO. LTD.

ACKNOWLEDGEMENT

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Datum/Date

03. 12. 2002

Zeichen/Ref./Réf. HL72236/000/LHC	Anmeldung Nr./Application No./Demande n°./Patent Nr./Patent No./Brevet n°. 99303194.7
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire Affymetrix, Inc. (a California Corporation)	

COMMUNICATION

The European Patent Office herewith transmits

- ☐ the European search report
- ☐ the declaration under Rule 45 EPC
- ☒ the partial European search report under Rule 45 EPC
- ☐ the supplementary European search report concerning the international application under Article 157(2) EPC relating to the above-mentioned European patent application. Copies of the documents cited in the search report are enclosed.

The following specifications given by the applicant have been approved by the Search Division :

- ☐ Abstract
- ☒ Title
- ☐ Figure
- ☒ The abstract was modified by the Search Division and the definitive text is attached to this communication.
- ☒ The following figure will be published with the abstract, since the Search Division considers that it better characterises the invention than the one indicated by the applicant.
- Figure: **13**
- ☐ Additional copy(copies) of the documents cited in the European search report.

REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.





European Patent
Office

Application Number
EP 99 30 3194

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



European Patent
Office

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 99 30 3194

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-3

Method of verifying a manufacturing process including a plurality of steps.

2. Claims: 4-13

Method of designing polymer probes, computer program for designing polymer probes and substrate having polymer probes coupled thereto.



European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

EP 99 30 3194

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 464 414 A (SEBRING-FONTEBASSO S.R.L.) 8 January 1992 (1992-01-08) * claims 1-3 *	1-3	B01J19/00 G07C3/00 G07C3/14
X	L. A. COLOM ET AL.: "defect data analysis in integrated circuit manufacturing" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 18, no. 4, September 1975 (1975-09), pages 1059-1060, XP002105569 ISSN: 0018-8689 * the whole document *	1-3	
A	US 5 571 639 A (EARL A. HUBBELL ET AL.) 5 November 1996 (1996-11-05) * claims *	1-3	
A	EP 0 799 897 A (AFFYMETRIX, INC.) 8 October 1997 (1997-10-08) * page 5, line 18 - line 23 * * figure 1 *	1-10	
X		11-13	TECHNICAL FIELDS SEARCHED (Int.Cl.6) G07C B01J
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search: see sheet C</p>			
Place of search THE HAGUE		Date of completion of the search 22 November 2002	Examiner Stevnsborg, N
CATEGORY OF CITED DOCUMENTS			
<p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			



European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 99 30 3194

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	US 5 593 839 A (EARL A. HUBBELL ET AL.) 14 January 1997 (1997-01-14) * abstract * * column 2, line 11 - column 3, line 6 * * column 6, line 47 - line 56 * * column 7, line 42 - line 48 * * figure 4 *	4-13	
T	EARL HUBBELL & PAVEL A. PEYZNER: "FIDELITY PROBES FOR DNA ARRAYS" PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON INTELLIGENT SYSTEMS FOR MOLECULAR BIOLOGY, 6 August 1999 (1999-08-06), pages 113-117, XP000994620 US * the whole document *	4-13	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)



European Patent
Office

**INCOMPLETE SEARCH
SHEET C**

Application Number
EP 99 30 3194

Claim(s) searched incompletely:
1-3

Reason for the limitation of the search:

Present claims 1-3 relate to an extremely large number of possible methods for verifying a manufacturing process. Support within the meaning of Article 84 EPC and/or disclosure within the meaning of Article 83 EPC is to be found, however, for only a very small proportion of the methods claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the methods of claims 1-3 wherein the verifying process is applied to the manufacturing of polymer probes comprising sequences of DNA or RNA.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 3194

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-11-2002

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 464414	A	08-01-1992	IT	1242741 B	17-05-1994
			CS	9102016 A3	13-05-1992
			EP	0464414 A2	08-01-1992
			HU	61956 A2	29-03-1993
			PL	290816 A1	13-01-1992
			PT	98162 A	30-09-1993
US 5571639	A	05-11-1996	US	5593839 A	14-01-1997
			US	5856101 A	05-01-1999
EP 799897	A	08-10-1997	US	6458530 B1	01-10-2002
			EP	0799897 A1	08-10-1997
US 5593839	A	14-01-1997	US	5571639 A	05-11-1996
			US	5856101 A	05-01-1999



European Patent
Office

Application Number
EP 99 30 3194

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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1. Claims: 1-3

Method of verifying a manufacturing process including a plurality of steps.

2. Claims: 4-13

Method of designing polymer probes, computer program for designing polymer probes and substrate having polymer probes coupled thereto.